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ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

FOR THE

EPPING UNION

RURAL SANITARY DISTRICT,

FOR THE YEAR 1893.

EPPING :

ALFRED B. DAVIS, HIGH STREET.

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GENTLEMEN,

In commencing my Annual Report for the year 1892, an outline of the chief geological and physical features of the district was given. The character of the water supply, and streams, as well as the different methods of sewage disposal which have been adopted, were fully described. And, as this Report, like its predecessors, has been printed, these particulars remain upon permanent record, rendering it, therefore, needless to repeat them now. In preparing a Health Report, however, there are certain fundamental facts which should be kept prominently in view. It is important to remember that the area of the district is 48,099 acres. That the population at the last census (1891) was 26,137. That, for the purposes of registration, the district is divided into the sub-districts—Chigwell, Epping, and Harlow, with respective areas of 13,959, 17,101, and 17,039 acres. The populations for each of these districts is given in Table B. at the end of this Report, and a little calculation shews the density of inhabitants per acre for these districts to be — Chigwell, 1·0; Epping, 0·3; and Harlow, 0·3; the total density being 0·5 per acre. It is important also to remember that the number of inhabitants per house is — for Chingford, 5·2; for Epping, 4·8; and for Harlow, 4·5.

The estimated population, for the whole district, to the middle of the year 1893 was 27,122.

(II.)—*Periodic Inspections of the District.*

Article 18 (Section 3) of the Local Government Board's Order of March, 1891, makes it the duty of the Medical Officer of Health to inspect the district both systematically at certain periods, and at intervals, as occasion may require.

I wish to call particular attention to this part of my duty, because it would seem that the words have never been properly interpreted in this district. When such systematic inspections have been made by me, and reports based upon them have been prepared, it has been suggested that I was exceeding my duty, or that I was doing the work of the Inspector of Nuisances; and thus it has happened that reports giving details of serious insanitary conditions, and pointing out urgent requirements, have simply been handed over, unread, to the Inspector of Nuisances, to deal with as he thought best. I do not complain of this, but I feel bound to point to the specific instructions under which the Medical Officer of Health is required to act, and the neglect of which might, not unjustly, bring censure upon him.

The systematic inspections made by me during the past year were the following:—

May.—HARLOW COMMON AND MILL STREET. Several insanitary cottages. Defects were notified to the Inspector of Nuisances, with instructions to take the necessary steps to have them rectified. One cottage in Mill Street was condemned as being unfit for human habitation, but no further proceedings were taken.

June.—THE ROOKERY, EPPING. Cottages all more or less in an insanitary condition. Brought under notice of Inspector of Nuisances, who suggested condemning them, but so extreme a measure would deprive the occupants of the only shelter they were likely to be able to obtain.

NETTESWELL. A number of new villa dwellings at Burnt Mill Road, occupied by artisans. The soil is a loose gravel, furnishing abundant springs of pure water. Several pig-styes having been constructed, and the drainage from them threatening the water supply, a general order was issued to remove them.

July.—Back premises of houses and field-ditches on the North side of the town of Epping. It was found that owing to many houses remaining unconnected with the sewers, and draining into these ditches instead, that very serious nuisances were occasioned. The Inspector of Nuisances' attention was called to this matter, and upon notices from him several of the houses referred to were afterwards connected with the sewerage system.

September.—HARLOW (TOWN). Houses previously condemned were re-inspected, and found to have been repaired, and made habitable. Certain drainage defects discovered at other premises were taken in hand by the Inspector of Nuisances. The several bake-houses and slaughter-houses were inspected. For the most part these were found in a satisfactory condition. In one bake-house defects were found in the floor and drains, which were ordered to be remedied. It was also found that a more frequent use of the white-wash brush is generally needed.

October.—The whole of the bake-houses and slaughter-houses, as well as many other premises in the town of Epping, were inspected. Many improvements were found to have been effected since the previous inspection. With regard to bake-houses and slaughter-houses there appears to be a wholesome rivalry amongst the owners, as to which shall be most perfect in its arrangements, and which the best kept. Fault had to be found, however, with some of the bake-houses, in the presence of cobwebs betraying the neglect of white-washing. In one, because of an accumulation of manure close to the bake-house wall; and in two cases the water used for bread-making was of a suspicious character. Samples were ordered to be taken for analysis in these cases, and no arguments can be needed to show the desirability of such a proceeding. Upon the whole it may fairly be said that Epping has no reason to be ashamed of its bake-houses or slaughter-yards. It is a pity the same cannot be said of some other houses and premises. Whole rows of houses in the High Street are still unconnected with the sewers, and a large number of the inhabitants continue to drink water from polluted surface-wells. Although no serious epidemic has to be recorded as a result of this, it must not be supposed that this water is drunk with absolute impunity. Many cases of sickness during the year have been traced to the use of such water, and, in one instance, a severe attack of Choleraic-diarrhœa very nearly cost the sufferer his life.

Besides the foregoing "periodic" or "systematic" inspections, the following have also to be recorded as having been made under the special occasions calling for them.

January.—THEYDON GARNON AND THEYDON BOIS.—Certain cottages and houses dilapidated, and infected with scarlet fever contagion. Disinfected and repaired under Inspector of Nuisances.

February.—THEYDON BOIS.—Alms Houses, defective drainage, remedied under Inspector of Nuisances.

March.—THEYDON BOIS.—A road ditch receiving sewage and causing a dangerous nuisance, many times previously complained of. A covered drain to take the sewage to a safe distance from the road has since been laid.

CHINGFORD.—Several houses inspected with reference to an outbreak of Diphtheria. This will be again referred to later on in this report.

April.—THEYDON BOIS, EPPING, AND NORTH WEALD.—Several houses inspected in consequence of outbreaks of scarlet fever. Usual precautions recommended, printed instructions distributed, and houses fumigated by Inspector of Nuisances.

May.—Infectious Hospital inspected, and advice given to have it cleansed, lime-washed, and painted. This could only be partially carried out in consequence of the frequent admission of new patients. Several nearly dried up ponds were inspected, and advice was given to have them cleaned out.

June.—HARLOW inspected with reference to an outbreak of scarlet fever, advice given to Inspector, and Schools closed by order. THEYDON GARNON.—A house unfit for habitation was inspected under "Housing of Working Classes Act," and condemned. It has since undergone some slight repairs, but no further action has been taken. THEYDON BOIS.—Houses with scarlet fever were inspected, and dealt with in the usual way.

July.—POTTER STREET. Houses with defective drainage were inspected, and advice was given to Inspector of Nuisances.

August.—THEYDON BOIS. Defects of drainage at Coppice Row were inspected, and brought under notice of Inspector of Nuisances. Unwholesome premises at CHINGFORD were also inspected, and nuisances from pigs were removed after proceedings before the Justices had been taken.

September.—THEYDON BOIS, THEYDON GARNON, AND CHINGFORD. Houses with infectious diseases were inspected, and the Inspector of Nuisances was advised as to proceedings, &c.

October.—HARLOW, NORTH WEALD, EPPING, THEYDON GARNON, AND CHIGWELL ROW.—Many houses with infectious diseases were inspected, and the Inspector of Nuisances was advised as to precautions, &c. At LOUGHTON and BUCKHURST HILL, several unhealthy houses were inspected, and some unfit for human habitation were condemned; some of these have been repaired and made habitable, with respect to others, however, it was decided to take no further action during life-time of present owner.

November.—LOUGHTON.—Certain dilapidated cottages, and premises were inspected, and recommendations with respect to them were embodied in a special report to the Sanitary Authority. At POTTER STREET, cottages with infectious disease were inspected, and instructions were given to the Inspector of Nuisances.

December.—Houses, with defective drains, in one of which scarlet fever occurred, were inspected, and instructions were given to the Inspector of Nuisances. At EPPING UPLAND, houses unfit for human habitation were inspected and condemned; notices have been served upon the owner. At THEYDON BOIS nuisances from drainage of houses in Theydon Park, and Woburn Avenue, were inspected, and proceedings were taken by the Inspector.

(III).—Sanitary Improvements effected during the Year.

No large work of an imposing character has been undertaken during the year. Amongst those of chief importance were:

1. The improvement of the drainage of Coppice Row, Theydon Bois.
2. The same for Potter Street.
3. Woodside culvert drainage diverted, and otherwise improved.
4. Sewers extended in Hainault Road, Chigwell.
5. The same at King's Head Hill, Chingford.

6. Forest-side, Theydon Bois, road ditch receiving overflow sewage, piped and diverted.
7. Water mains extended in lower part of Chingford (Low street).

Other improvements, including those under the Housing of the "Working Classes" Act, will be found in the Sanitary Inspector's Statement which follows :

INSPECTOR'S STATEMENT.

Inspections and re-inspections	1,010
Notices served to abate or remove nuisances, &c.	634
,, ,, connect house drains to public sewer	39
Letters <i>re</i> notices, drainage, water supply, new houses, &c., &c. ..	1,007
Certificates given for new houses under "Water Act"	40
Number of houses certified	67
,, house drains re-constructed and connected to sewers ..	72
,, ,, disinfected after fever, &c.	55
,, old privy and drainage cesspools filled up and discontinued	88
,, samples of drinking water submitted to Medical Officer of Health	17
,, dairies, cow-sheds and milk-shops on register	65
,, ,, ,, new certificates granted	6
,, notices to Medical Officer of Health <i>re</i> nuisances	13
,, dwelling-houses closed, unfit for habitation after notice ..	5
,, notices under "Housing of Working Classes" Act, to make dwelling houses habitable	9
,, dwelling houses under notices	17
,, proceedings before Magistrates under the Act	2
,, dwelling houses under proceedings	8
,, closing order made	1
,, houses closed under order	4
,, ,, made habitable after summons	4
,, ,, made habitable by owners after notice	4
,, ,, closed by owners after notice	2
,, ,, demolished after notice	6
,, ,, in abeyance	4
,, notices as to dangerous buildings adjoining footpaths ..	2
,, ,, letting new houses without certificates	13
,, ,, offensive trades	2
,, ,, infectious diseases	45
,, ,, neglecting to report infectious disease	2
,, ,, abate overcrowding	6
,, ,, bury corpse	1
,, ,, register cow-sheds, dairies, &c.	4
,, ,, discontinue serving in shops and working during infection, disease in house, &c. ..	12
,, ,, discontinue slaughtering animals in improper places	4
,, ,, discontinue depositing refuse, &c., in street	3
,, ,, cleanse cow-sheds	2
,, ,, ,, water tanks	14
,, ,, ,, ditches, &c.	20
,, ,, ,, ponds	15
,, ,, ,, and drain premises	8
,, ,, ,, and improve piggeries and stables	15
,, ,, ,, wells	12

Number of notices as to repair and drain cow-sheds	2
„ „ „ and make habitable dwelling houses	24
„ „ „ roofs of houses	2
„ „ „ interior of houses	12
„ „ „ surface pavement of slaughter houses	2
„ „ „ water pipes and pumps	11
„ „ „ w.c. and privies	24
„ „ „ w.c. flush pipes and tank	30
„ „ take samples of domestic water supply for analysis	5
„ „ Surveyors of Highways	4
„ „ Water Companies, as to waste of water..	13
„ „ Gas Companies, defective pipes	2
„ „ water in wells unfit for domestic use ..	6
„ „ vacate dwelling houses, ordered to be closed	4
„ „ ventilate drains and cesspools.. ..	27
„ „ „ w.c. pipes and privies	10
„ „ improve and drain urinals	3
Signed	

J. H. BELL, *Inspector.*

(IV.)—Action taken to prevent the spread of Infection.

The number of cases of Infectious Diseases notified was 290. Only nine of which were dual, *i.e.*, notified by the head of the household as well as by the Medical Attendant. During the previous year the number of cases notified was only 104. There was therefore a remarkable increase for the past year. This increase occurred chiefly with respect to Scarlet Fever and Erysipelas. The proportional increase being as four to one, and two to one respectively, for these diseases, as compared with the previous year. The following table shows the numbers from each disease for each sub-district.

	Scarlet Fever.	Diphtheria.	Typhoid Fever.	Erysipelas.	Total.
CHIGWELL	113	19	12	27	171
EPPING	31	5	1	6	43
HARLOW	41	4	3	26	74
WORKHOUSE ..	..	..	..	2	2
TOTAL	185	28	16	61	290

Two cases notified by heads of families, were neglected to be notified by the Medical Attendant, and two cases of Membranous Croup, in the Chigwell district, were omitted to be notified at all.

SCARLET FEVER.

This disease has been exceptionally prevalent in the district during the year. Through each month fresh cases were notified from Chigwell. The greatest prevalence of the disease being in the districts of Buckhurst Hill and Loughton. At Chingford it prevailed from April until the end of the year. Many cases occurred also in Epping, Theydon Garnon, and Theydon Bois, from April onwards. In the parish of Harlow, fresh cases were notified from the commencement of the year until the month of September, after which month no further cases occurred there. The following districts were entirely free from the disease, viz:—Magdalen Laver, Matching, Latton, Little Parndon, Roydon, and Nazeing.

In each case notified, an inspection was made either by myself, or by the Sanitary Inspector. Twenty-nine cases were removed to the District Infectious Hospital. It was found impossible to trace the source of infection in a large number of cases, but personal contact accounted for a good many. In one instance infection was introduced to the Parish Schools through one of the Teachers, who had unwittingly returned to her duties whilst in an infectious state. Several of the pupils conveyed the disease to their homes, and the schools had in consequence to be closed for several weeks. In the month of February the Theydon Bois Schools had to be closed for a short time because of the prevalence of the disease in the district. In the month of April several cases having occurred at North Weald, advice had to be given to exclude the children from infected houses, a measure which together with the removal of some of the cases to the Infectious Hospital, prevented a further spread of the disease. In November the Chigwell Board Schools were closed for three weeks, in consequence of an outbreak at Chigwell Row. The effect of School closure for epidemics of Infectious Diseases, has always proved most satisfactory in this district. A marked decline in the progress of the epidemic has invariably followed, and I do not remember an instance where fresh cases have been traced to the Schools upon re-opening. Of course the Managers and Teachers are

always advised to avoid re-admitting pupils from houses which have been infected, without a Doctor's Certificate.

As there were only seven deaths from Scarlet Fever during the year, or about one for every thirty-seven persons attacked, it is manifest the disease was of a very mild type. Unfortunately, with this disease, the sequelæ are serious, and may be long deferred, therefore, it is impossible to form even an approximate estimate of the damage inflicted upon the community merely from the fatalities which have occurred during the progress of the epidemic. The pecuniary cost to the district can, however, be more accurately calculated, and this I fear will be found to have been very heavy, when the Union Accounts come to be made up.

DIPHTHERIA.

Although so many more cases of this disease were notified than during the previous year, the number being twenty-eight, as against eighteen, for the year 1892, yet the fatal cases during the year showed only an increase of one. The disease was most prevalent in the Spring and towards the end of the year. The largest number notified in one month, being seven in October.

During March and April ten cases were notified from Chingford. In May, another case from Chingford, and one from Harlow. In August, one from Loughton, and one again from Chingford. In September, another again from Chingford, and one from Theydon Garnon. In October, we had again two cases from Chingford, two from Epping and one from each of the following districts, viz:—Theydon Bois, Theydon Garnon, and Potter Street. In November, we had one each from Theydon Bois, and Netteswell. And finally in December, we have one from North Weald, and another again from Chingford. Thus it will be seen the disease has been more or less prevalent in Chingford, during the entire year. Why this should have been so, is not easily explained. Special inspections and special reports have been made upon this subject at different times during the year. The water supply is beyond suspicion, and the system of sewerage is similar to that in other localities which have been free from the disease during the same period. The only difference, or local peculiarity, would be in the

character of the populations. That in Chingford being much more intimately associated with London than the rest of the district, and it is to be noted that this disease has been remarkably prevalent in London during the past year.

TYPHOID FEVER.

Sixteen cases, with four deaths, occurred during the year. In six of the cases notified it was discovered that the persons had come into the district after having contracted infection elsewhere. Two came from Worthing, where the epidemic was so severe during the summer. Cases, such as these, point to the difficulty with which the dissemination of infectious diseases is prevented. These persons had left Worthing apparently in excellent health, and it was not until after they had been in this district some days that they began to show symptoms of the disease. A similar case came into the district from the neighbourhood of Birmingham. None of these cases of Typhoid were considered suitable for removal to the District Infectious Hospital, but every precaution was taken to isolate them in their own homes, and to prevent infection being carried abroad. In those instances in which the disease was not due to importation, every endeavour was made to discover the cause, but without any satisfactory result in either case.

ERYSIPELAS.

There was a remarkable increase in the prevalence of this disease as compared with previous years. The number notified was sixty-one, as against thirty and ten, for the years 1892 and 1891. The increase was chiefly in the Harlow district, where as many as twenty-five cases occurred. Fresh cases continued to be notified during each month, but the season of greatest prevalence was the Autumn, with the maximum of ten in the month of September. The cases were widely distributed in each district, and had no apparent connection with each other. The numbers notified from Harlow per month varied from one in each of the first five months to seven in the month of July. After this they declined until they disappeared altogether in the months of November and December. In connection with the prevalence of this disease in the Harlow district it is to be remarked that the water supply is more deficient there, than in either of the other districts. Surface wells, ponds, and streams, are in more general use, and in consequence of the long continued drought, many of them had

either failed entirely or had become excessively impure, it does not appear unreasonable to assume a connection between this circumstance and the great prevalence of Erysipelas. To such extremities were many persons reduced that water carts had to be employed for several weeks distributing water in small quantities amongst them.

DIARRHŒA.

It is somewhat remarkable, with the exceptional drought, and the consequent scarcity of water in many parts of the district, that there were not more cases of Diarrhœa. The deaths numbered but thirteen, which is only slightly above the mean for the ten years, 1881 and 1891. That a large quantity of very impure water was consumed for drinking purposes is beyond doubt, and it might be expected that the effect would show itself in an increase in the amount of Infantile Diarrhœa especially. Nothing of the kind, however, is the case, and this may be accounted for, to some extent, in the facts that the largest infant population is to be found in the Chigwell district, which is well provided with water, and was wholly unaffected by the drought, and that the water used in infant feeding is usually boiled. In Epping several severe cases of Choleraic-diarrhœa occurred amongst persons using the water from a polluted surface well.

MEASLES AND WHOOPING COUGH.

There is but little to state with reference to these diseases. They do not come under the "Notification Act" in this district, and during the year but few cases seem to have occurred. The only exception was the parish of Netteswell, when, in the month of April, in consequence of an epidemic of Measles the schools had to be closed for a short time; only one death occurred from Measles and two from Whooping Cough during the year.

INFLUENZA.

There appears to be good ground for including Influenza amongst the principal infectious diseases, for each year brings with it a record of deaths caused by it, and its infectiousness now admits of no further doubt. During the earlier part of the year the disease was very prevalent, and throughout the summer and autumn a chain of cases carried infection on until the months of October, November, and December, when the

disease again became epidemic. It has often been observed in this district that persons whose occupation requires them to live in the open air are the first to contract the disease and bring it home to their families, and those who live in the midst of bad sanitary surroundings are most liable to succumb to the dangerous complications with which the disease is so often accompanied. As many as twelve deaths were due to Influenza, a number scarcely exceeded by either of the zymotic diseases.

DISTRICT INFECTIOUS HOSPITAL.

In consequence of the excessive number of cases of scarlet fever, the past year has been a busy one for our Infectious Hospital. As many as Thirty-one cases have been admitted. The mean number of cases per year, for the previous ten years being only five. In the following table particulars are given respecting each case.

Date of Admission	Sex.	Age.	District from which received.	Nature of Disease.	Remarks.
Jany 28	Male	6 yrs.	Theydon Bois	Scarlet Fever	Discharged March 4th
" 30	Female	6 "	"	"	" March 4th
" 30	Female	14 "	Woodford	"	" March 4th
Feby 2	Female	6 "	Theydon Bois	"	" March 11th
" 7	Female	4 "	"	"	" March 4th
April 3	Female	27 "	Thornwood Com.	"	" May 12th
" 3	Female	1½ "	"	"	Died April 4th
" 4	Male	13 "	"	(Malignant)	
" 8	Male	19 "	North Weald	Scarlet Fever	Discharged May 12th
" 11	Female	14 "	"	"	" May 6th
" 23	Male	6 "	Theydon Garnon	"	" May 12th
" 23	Female	8 "	"	"	" May 12th
May 20	Female	13 "	Harlow	"	" June 29th
" 31	Female	11 "	Loughton	"	" July 8th
June 5	Female	21 "	Harlow	"	" June 29th
" 21	Male	10 "	"	"	" August
" 27	Female	13 "	Epping	"	" July 27th
July 18	Male	12 "	Harlow	"	" Aug. 25th
Aug. 1	Male	6 "	"	"	" Sept. 21st
" 15	Female	5 "	Epping	"	Died, August 31st
Sept. 6	Female	19 "	Theydon Garnon	"	Discharged, Oct. 10th
" 8	Female	12 "	"	"	" Oct. 16th
" 14	Female	22 "	"	"	" Oct. 30th
" 27	Female	19 "	"	"	" Nov. 10th
" 23	Female	12 "	Harlow	"	" Nov. 10th
Oct. 3	Female	19 "	North Weald	"	" Nov. 18th
" 7	Female	10 "	Epping	"	" Dec. 2nd
" 7	Female	6 "	Theydon Garnon	"	" Nov. 25th
" 11	Female	5 "	Epping	"	" Dec. 2nd
Nov. 9	Male	7 "	"	"	" Dec. 21st
Dec. 6	Female	8 "	Theydon Garnon	"	Still under treatment

(V.)—*Cause and Distribution of Disease.*

As regards the infectious diseases, their cause and distribution have already been incidentally referred to. In a district situated so near a populous centre such as this is to the great Metropolis, it is inevitable that disease be introduced from time to time; nor can any amount of care or discrimination prevent infectious cases in their incubation stages being imported. The custom of boarding poor London children amongst cottagers in the district, is one which is especially liable to be a means of conveying infection. In one instance of this kind, a child which was brought into this district in August, and placed with a cottager's family, developed Scarlet Fever the following day, and was removed to the Infectious Hospital, where she subsequently died. Had it not been possible to remove the case immediately, probably a further spread of the disease would have occurred. There have been other instances of London children being passed through this district when actually ill with scarlet fever, and in one such case a prosecution ending in a conviction of the guilty parties was instituted. It is most desirable that this system of boarding-out London children in the country should be under the control of the Rural Sanitary Authority. It frequently happens that these children are placed in cottages already over-crowded, or in which the sanitary conditions are bad, and instances have occurred of children being placed in cottages in which there had only recently been infectious disease. A register of all suitable cottages in the district should be kept by the Rural Sanitary Authority, and no child should be received without a medical certificate, stating it to be free from infection.

(VI.)—*Sanitary Requirements of the District.*

These may be divided chiefly into matters of drainage and of water supply. First amongst the former is the necessity to compel defaulting owners of houses in the Epping Special Drainage District, to connect their premises with the sewerage system. This is a matter to which attention has repeatedly been called.

It is to be hoped that the delay in providing the public sewer for St. John's Road, Epping, will not be of long duration, and that we shall not have to wait for another outbreak of disease to hasten its completion.

In many parts of the district the state of the public roads calls for attention; unmade roads as they are called, such as Woburn Avenue, Theydon Bois, Tidy's Lane, and part of Hemnall Street, Epping, as well as other roads in Chigwell and elsewhere, which have not yet been taken over by the parishes, are veritable quagmires in the winter, and in the summer they are rendered scarcely less unhealthy by reason of the numerous deposits of dust and refuse with which they are usually strewn. It is not my office to discuss the legal difficulties which confront the Rural Sanitary Authority, preventing their dealing with such a matter as this; but it is little short of a scandal that, with our modern multiplicity of Boards, Authorities, Councils, and Committees, the remedy appears to be as far off as ever. In some parts of the district the scavenging of the roads is much neglected; as an instance, there is the road at Ivy Chimneys, Theydon Bois, where heaps of mud and refuse are allowed to remain for months, close to the doors of the cottages. To this matter attention has been called upon previous occasions.

The need for properly-constructed dust-bins, or ash-pits, is one which is much felt in some parts of the district, and the regular removal of dust and refuse should be contracted for more generally than it is.

The more frequent and regular emptying of cesspools should be insisted upon, and no excuse should be accepted for the too common neglect of this duty from the persons responsible.

In all places where there is a proper water supply, the w.c.'s should be provided with flushing cisterns, instead of being dependent upon hand-flushing, which is now so common.

With reference to water supply requirements, it is high time that the supply from polluted surface-wells should be superseded by that from the different Water Companies in the district. This remark applies especially to Epping, where the dangerous and injurious quality of the water supply for many of the houses has so often been referred to. Something should be done to obtain a better supply for certain districts, such as Rye Hill, Latton, and parts of Nazeing, which are dependent almost entirely upon ponds, and which in seasons of drought, have to endure the distresses of a water famine. An attempt should be made to meet this difficulty by borings in these districts. Besides such requirements as the foregoing, the need

of better houses for the working classes must not be omitted. Amongst the sanitary improvements effected during the year was the closing of certain houses, under the "Housing of the Working Classes" Act, but in some instances, when houses were condemned by me as being unfit for human habitation, no action was thought desirable by the Rural Sanitary Authority, simply out of consideration for the circumstances of the owners, and in other instances when action should, technically, have been taken by myself, nothing was done because if I had condemned the houses the poor people would have been turned adrift with the absolute impossibility of obtaining other dwellings staring them in the face. As long as the present scarcity of better houses for the working classes continues, this Act which was to have done so much for them, must remain, to a great extent, a dead letter.

It is necessary once again to call attention to the great inconvenience in which we are so often placed through the need of a Disinfecting Apparatus for the district. To be dependent upon a neighbouring district for the disinfection of bedding, &c., is not at all a good or satisfactory arrangement.

(VII.)—Special Reports made during the Year.

These were as follows:—

- 1.—*January*.—Upon a diphtheria outbreak at Chingford.
- 2.—*February*.—Upon scarlet fever at Theydon Bois.
- 3.—*March*.—Further report upon diphtheria at Chingford.
- 4.—*April*.—Upon the prevalence of scarlet fever in four different parishes in the district.
- 5.—*June*.—Further report upon scarlet fever, and upon influenza at Epping.
- 6.—*July*.—Upon new cases of scarlet fever at Epping, and necessity for a public sewer in St. John's Road.
- 7.—*September*.—Upon scarlet fever at Theydon Garnon, and prevalence of infectious diseases generally, throughout the district.

8.—*October*.—Upon new outbreaks of scarlet fever and diphtheria in different localities.

9.—*November*.—Under Sec. 30 of the “Housing of the Working Classes” Act, upon houses unfit for habitation at Theydon Garnon and at Buckhurst Hill.

10.—*December*.—Upon outbreak of diphtheria at Chingford.

(VIII.)—*Legal Proceedings taken during the Year.*

UNDER “HOUSING OF WORKING CLASSES” ACT.

Against two Owners to put eight dwelling houses in habitable repair. An order was made in one case to close four houses, and in the other the four houses were put into habitable repair, after the issue of the summons.

Against Persons for removing child suffering from scarlet fever, through district and by railway. Fined 20s.

Against Person for keeping pigs in improper places. An order was made to abate and prohibit the nuisance.

Against a Person for overcrowding rooms in his occupation. An order was made to abate overcrowding; also summoned for disobeying order. Fined 12s.

Against two Occupiers for allowing drainage cesspools to overflow, &c. An order was made to abate and prohibit the nuisance.

(IX.)—*Vital Statistics.*

The births registered during the year were 726, giving a birth-rate of 26·7 per 1,000 of the estimated population, as compared with a birth-rate of 25·4 per 1,000 for the preceding year.

The birth-rates for the three sub-registration districts were—

For Chigwell, 27·6 per 1,000.

„ Epping, 25·7 „

„ Harlow, 25·7 „

The deaths registered during the year were 361, corresponding to a death-rate of 13·3 per 1,000 of the estimated population. This is the lowest death-rate on record for the period of eighteen years, during which I have now held the office of Medical Officer of Health for this district. The mean annual death-rate for the ten years ending 1892, was 16·5 per 1,000. Notwithstanding, therefore, the great prevalence of scarlet fever, and the fatalities from influenza, the past year has been a remarkably healthy one in this district. The death-rates for the three sub-districts were as follows—

Chigwell, 10·7 per 1,000.

Epping, 14·5 „

Harlow, 14·2 „

The rate of infant mortality, measured by the proportion of deaths under one year to births registered, was equal to 100·5, being a considerable increase upon the rate for the previous year, which was 83·8 per 1,000; but still below the mean annual rate for the ten preceding years, which was found to have been 114·9 per 1,000. The rate of infant mortality for the three sub-districts was—

Chigwell, 95·3 per 1,000.

Epping, 108·3 „

Harlow, 100·0 „

The deaths due to the principal zymotic diseases were 32 in number, viz. : scarlet fever, 7; diphtheria, 5; typhoid fever, 4; measles, 1; whooping cough, 2; diarrhoea, 13. The death-rate from these diseases was equal to 1·1 per 1,000. For the preceding year the zymotic death-rate only reached the exceptionally low figure of 0·6 per 1,000. The mean annual rate for the previous ten years was equal to 2·08 per 1,000. The zymotic death-rate for the three sub-districts during the past year was as follows:

Chigwell, 1·0 per 1000

Epping, 1·6 „

Harlow, 0·9 „

I have now only to add the statistical information regarding Births, Deaths, and new cases of Infectious Diseases, as required by the Local Government Board, in Tables A and B, which are appended to this report.

I am, Gentlemen,

Your obedient Servant,

TREVOR FOWLER,

L.R.C.P.I. and L.R.C.S.I., D.P.H. Camb., &c.

Medical Officer of Health.

TO THE EPPING UNION

RURAL SANITARY AUTHORITY.

Epping, February 15th, 1894.

[illegible]

(XL).—TABLE (B) OF POPULATION, BIRTHS, AND OF NEW CASES OF INFECTIOUS SICKNESS, coming to the knowledge of the Medical Officer of Health, during the year 1893, in the Rural Sanitary District of Epping; classified according to DISEASES, AGES, AND LOCALITIES.

NAMES OF LOCALITIES adopted for the pur- pose of these Statistics	POPULATION AT ALL AGES.				Aged under 5 or over 5.	NEW CASES OF SICKNESS IN EACH LOCALITY. COMING TO THE KNOWLEDGE OF THE MEDICAL OFFICER OF HEALTH.																			NUMBER OF SUCH CASES REMOVED FROM THEIR HOMES IN THE SEVERAL LOCALI- TIES FOR TREATMENT IN ISOLATION HOSPITAL.										
	(a.)	(b.)				Registered Births	FEVERS.										FEVERS.									FEVERS.									
		Census 1891.	Estimated to middle of 1893.	(c.)			(d.)	Smallpox.	Scarlatina.	Diphtheria.	Membranous Group.	Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.	Erysipelas.	Measles.	German Measles.	Smallpox.	Scarlatina.	Diphtheria.	Membranous Group.	Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.	Erysipelas.				
CHIGWELL	14,020	14,802	409	{ Under 5. 5upwrds.	...	11	2	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
EPPING (H)	5,999	6,096	157	{ Under 5. 5upwrds.	...	102	17	...	...	11	...	...	...	...	27	...	...	...	...	...	...	...	...	...	...	...	...	...	...
HARLOW	6,118	6,224	160	{ Under 5. 5upwrds.	...	27	5	...	...	1	...	...	...	...	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...
EPPING WORKHOUSE...	{ Under 5. 5upwrds.	...	32	4	...	...	3	...	...	...	...	25	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTALS	26,137	27,122	726	{ Under 5. 5upwrds.	...	23	3	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...

(H) Locality in which Infectious Hospital is situated.

ANNUAL REPORT
OF THE
MEDICAL OFFICER OF HEALTH
FOR THE
RURAL SANITARY DISTRICT
OF THE
ERPINGHAM UNION
FOR THE YEAR
1893.

NORWICH : PRINTED BY FLETCHER AND SON.

CROMER SUB-DISTRICT.

ALDBOROUGH	HANWORTH
AYLMERTON	MATLASK
BACONSTHORPE	METTON
BARNINGHAM NORTHWOOD	OVERSTRAND
BARNINGHAM WINTER	PLUMSTEAD
BECKHAM	ROUGHTON
BEESTON REGIS	RUNTON
BESSINGHAM	SHERRINGHAM
FELBRIGG	SUSTEAD
GRESHAM	THURGARTON

HOLT SUB-DISTRICT.

BODHAM	HUNWORTH
BRISTON	KELLING
CLEY	LEATHERINGSETT
EDGEFIELD	SALTHOUSE
GLANDEORD	STODY
HEMPSTEAD	THORNAGE
HOLT	WEYBOURNE

REPPS SUB-DISTRICT.

ANTINGHAM	SIDESTRAND
GIMINGHAM	SOUTHREPPS
GUNTON	SUFFIELD
KNAPTON	THORPE MARKET
MUNDESLEY	TRIMINGHAM
NORTHREPPS	TRUNCH



ANNUAL REPORT.

BIRTHS.

THESE were 480 in number, comprising 217 male and 263 female children. The annual birth-rate was 28·5 per 1000 inhabitants, which is rather below the average birth-rate of the preceding ten years, viz., 31 births per 1000. As the number of deaths last year was only 290, we get a balance of 190 in favour of the births, representing a natural increase in the population of the district of about 11 per 1000 inhabitants.

The subjoined table indicates the variations met with in the birth-rate in the three sub-districts.

BIRTH-RATE PER 1000 INHABITANTS.

			1893		1883-92
Repps Sub-District	...	...	32	...	31
Cromer Sub-District	...	...	27	...	29
Holt Sub-District	...	...	25	...	32
Whole District	...	...	28	...	31

DEATHS.

The deaths, as mentioned above, were 290 in number, constituting an annual death-rate of 17·2 per 1000 inhabitants, which is, practically speaking, identical with the average death-rate of the ten preceding years. The deaths were pretty evenly distributed between the two sexes, 142 of the deceased being males and 148 females. Nine of the deaths were due to accidental causes or injuries, whilst coroner's inquests were held in thirteen cases of sudden deaths. Six deaths were registered without a medical certificate, and at least seven of the deceased children were illegitimate.

LOCAL DEATH-RATE PER 1000 INHABITANTS.

			1893		1883-92
Cromer Sub-District	...	...	14	...	16
Holt Sub-District	...	...	18	...	17
Repps Sub-District	...	...	18	...	15
Whole District	...	...	17	...	17
Holt Parish	...	...	22	...	16
Sherringham	...	...	16	...	—

The comparatively high death-rate in the Holt Sub-District was undoubtedly due to the somewhat high infant mortality in the parish of Holt last year. Epidemic disease, too, was very rife in this sub-district, though perhaps not more so than in the other sub-districts. It is clear that Sherringham is not less healthy than it has been in previous years, although it depends a good deal upon the Parochial Committee whether it will sustain its reputation in the future as well as in the present.

DEATH-RATE AT DIFFERENT SEASONS.

			1893		1883-92
First Quarter	...	...	18	...	21
Second Quarter	...	...	17	...	16
Third Quarter	...	...	16	...	15
Fourth Quarter	...	...	18	...	15

The death-rate was rather less than usual in the first quarter and correspondingly high in the fourth quarter.

AVERAGE DURATION OF LIFE.

			1893		1883-92
Cromer Sub-District	...	...	42	...	43
Repps Sub-District	...	...	38	...	43
Holt Sub-District	...	...	33	...	45
Whole District	...	...	38	...	44
Workhouse	...	...	61	...	62
Holt Parish	...	...	23	...	45
Sherringham	...	...	41	...	—

Allusion has already been made to the unusual number of infantile deaths in the parish of Holt last year. The low mean age of the deceased in this parish forms a necessary corollary to this heavy infant mortality. As a rule longevity is the order of the day in Holt, but this was not the case there in 1893.

DEATH-RATE AT DIFFERENT AGES.

Under 1 year	...	...	3·7	per 1000 inhabitants.
1 to 5 years	...	...	2·1	„ „
5 to 15 years	...	...	0·4	„ „
15 to 25 years	...	...	1·2	„ „
25 to 65 years	...	...	4·3	„ „
65 and upwards	...	...	5·5	„ „
			<u>17·2</u>	

It is obvious from the above table that about one third of the deceased were young children under five years of age.

Examining each sub-district separately we get the following results :—

SUB-DISTRICTS.	Under 1 year.	1 to 5 years.	5 to 15 years.	15 to 25 years.	25 to 65 years.	65 and upwds.
Cromer S. ...	2·4	1·4	0·4	1·1	4·2	5·0
Repps S. ...	2·9	2·7	0·5	2·2	3·7	6·4
Holt S. ...	5·3	2·5	0·3	0·8	4·5	4·3
Holt Parish	8·9	3·3	1·1	0·6	5·6	2·8

Whilst the infantile mortality in the parish of Holt was excessive in amount, the senile mortality was below the average, and it is to the combined operation of both these causes that we must attribute the low mean age of the deceased in this parish.

ZYMOTIC SICKNESS AND MORTALITY.

The Erpingham Union, like many other parts of the kingdom, was much infested with epidemic disease last year. It was not so much the actual number of cases that occurred at any one time as the long persistence of the visitations, in consequence of which the district was hardly ever free from infectious disease of some kind or other. The number of cases of typhoid fever, scarlatina, diphtheria, and whooping cough were all in excess, and the mortality from this class of diseases was higher than it has been in any year since I have been in office. The subjoined table exhibits the infectious death-rate in the whole district as well as in its component parts.

ZYMOTIC DEATH-RATE.

			1893		1883-92
Cromer Sub-District	...	...	1·9	...	0·8
Repps Sub-District	...	...	1·9	...	0·6
Holt Sub-District	...	...	2·8	...	0·9
Whole District	...	...	2·2	...	0·8
Holt Parish	...	...	3·3	...	0·4
Sherringham	...	...	0·6	...	—

The zymotic mortality in Sherringham was practically *nil*, a solitary death from diarrhœa being the only representative of the infectious class of diseases. The ten years' average column affords conclusive evidence that last year was a very exceptional one in our sanitary annals.

The total number of infectious cases notified was 102, scarlatina and diphtheria forming the largest contingent. The cases of typhoid fever, twelve in number, were also greatly above the average.

ZYMOTIC SICKNESSES AND DEATHS.

ZYMOTIC DISEASES.	SICKNESSES.	DEATHS.
Scarlatina	45	2
Diphtheria	40	5
Typhoid Fever	12	2
Erysipelas	5	1
Membranous Croup ...	—	1
Measles	—	1
Whooping Cough ...	—	23
Diarrhœa	—	5
Total	102	40

Scarlatina.—A few sporadic cases of this disease occurred in about nine different parishes during the first nine months of the year. In the months of October, November, and December, as many as 32 cases were reported, principally in the parishes of Roughton, Hanworth, and Holt. In all the more important cases I visited the houses affected, and gave directions respecting isolation, disinfection, and the abatement of any nuisances that attracted my attention. It was found necessary to close the schools at Roughton, Southrepps, and Aldborough, in consequence of this disease.

Diphtheria.—Seven cases of diphtheria occurred in the month of January, but were all isolated sporadic cases, having no apparent connection with each other, although, with one exception, limited to the Holt Sub-District, which for some unknown reason has always been more subject to this malady than the other parts of the union. In the month of October a fatal case of diphtheria occurred in the family of the school-master at Aldborough. I found the school closets very defective, and steps were at once taken to remedy this evil. I also

analysed the drinking water used by the family, which proved to be of excellent quality. Every precaution was taken in the way of isolation and disinfection to prevent the spread of the disease. In the month of December several members of a family were attacked with diphtheria at Southrepps, and one death ensued. The inhabitants of this part of the village get their drinking water from a brook, which is certainly liable to pollution in rainy weather. One of the cottagers keeps a large heap of road manure close to a ditch which communicates with the brook in question. These manure heaps are very troublesome to deal with, as even when removed under pressure, they are very apt to spring up again. No less than ten cases occurred at Thurgarton during the last three months of the year. I visited most of these cases, but it did not appear to me that insanitary conditions had any hand in their production. The Aldborough School, which is attended by the children in this parish, was closed during the prevalence of the epidemic.

In the month of August two equestrian performers were taken ill with scarlatina at Holt, and treated for this disease in the Beckham Workhouse. The other inmates of this institution escaped infection, and there were no other cases in Holt.

Typhoid Fever.—No less than twelve cases of this fever were reported during the year. The first of these cases occurred at Edgefield in the month of January. The slop water ran into an open ditch in close proximity to the dairy window, whilst the drinking water was chemically impure, though not necessarily polluted. The patient succumbed to the malady.

In the month of June another case occurred at Thurgarton. The drinking water contained rather a large amount of albuminoid ammonia, but there was no other evidence of contamination (see analysis No. 11). The patient had, however, been nauseated by the bad smell arising from the decomposing body of a dead colt, which had been left in a field in close proximity to the place in which he happened to be working at the time.

In the same month a case of typhoid occurred at Southrepps. The drinking water gave good results when analysed (No. 5), but there was some evidence of the patient having been

exposed to a very foul effluvium arising from a defective slaughter-house.

In July a fourth case occurred at Weybourne. The drinking water was pure here also (see analysis No. 7), and there were no insanitary conditions present.

In the same month two other cases of typhoid occurred in one family at Roughton. There was no evidence of water contamination in this case (see analysis No. 9), nor did I find any defect in the drainage arrangements.

The next case occurred at Holt in the month of September. The Holt water supply is above suspicion (see analysis No. 1), but in consequence of the long continued drought which prevailed during this period of the year, the street sewers got blocked to some extent, and the manholes here and there emitted noxious gases, giving rise to numerous complaints. There was also a somewhat offensive water-closet near the back door of the house in question, which had no proper water supply.

The eighth case occurred in the next house but one to that inhabited by the previous patient, and which was subject to much the same sanitary conditions.

The ninth case occurred at Mundesley, but I had no opportunity of investigating the particulars of this case.

The tenth case occurred at Holt in the month of September. Some complaints had been made of the water-closet, but I failed to find out any defect in it. This case terminated fatally.

The eleventh case occurred at Baconsthorpe in the month of October. I found the drinking water of good quality (see analysis No. 3), but a rather offensive privy existed in close proximity to the back door, which may possibly have had some influence in generating the malady. As there was not sufficient space around the house to construct a new closet at a greater distance from it, I recommended the conversion of the existing one into an earth closet.

The twelfth and last case occurred also at Holt in October, and may have been due to the effluvium from the street manholes to which I have already alluded.

I have very full and ample particulars in my note book of all these typhoid cases, and, indeed, of all the cases of this fever that have come under my notice during the fifteen years I have been Medical Officer of Health in this county. I have made a full and complete analysis of the drinking water in almost every case, and have very carefully studied the surroundings of the water supply as well as the incidence of the disease. These investigations have certainly not been unprofitable, as it is only too clear to me that the theory that impure drinking water is a fertile source of typhoid fever will not bear too close investigation in rural districts, whatever it may do in large towns.

INFLUENZA.

Judging from the weekly returns of the district medical officers, the influenza epidemic was much less severe in 1893 than it had been in the previous year, only 40 cases having been recorded altogether against 71 in 1892. Most of the cases occurred in the months of February, March, and April, the epidemic having practically died out in the month of May. During the last two months of the year, however, a slight recrudescence of it took place. Strange to say, although eleven persons died of this malady, none of them belonged to the pauper class.

SANITARY IMPROVEMENTS.

During the past year no important sanitary undertakings were carried out, although it was unanimously decided to embark at an early period upon three much needed drainage schemes, the realization of which had been long advocated by the Rural Sanitary Authority and the Medical Officer of Health.

That part of the parish of Overstrand which adjoins Cromer, and is called Suffield Park, has been for some time past a source of anxiety to myself, a number of small houses having been recently erected here, the drainage arrangements of which are anything but satisfactory, being of a provisional or make-shift character, not unfrequently observed in new districts where building bye-laws are not yet in force. Fortunately the more intelligent owners of property took the matter up, and petitioned

the Cromer Local Board to be annexed to that urban district for sanitary purposes as the only way of getting over their present difficulties. Suffield Park being separated by high ground from Overstrand proper, a common drainage scheme for these two parts of the parish is out of the question. I think there can be little doubt the realization of this scheme will be of immense advantage to Suffield Park, and be beneficial in some respects to the larger watering place as well, the prosperity of which might be seriously jeopardised by the close proximity of an insanitary and unhealthy neighbour. Meantime, the original drainage scheme for Overstrand proper will be carried out in the form in which it was first proposed.

At Lower Sherringham Mr. Upcher is developing a portion of his estate, laying down new streets and drains, the latter of which are connected with the main sewer constructed a few years ago by the Sherringham Improvement Company. At the same time an adequate drainage scheme for the as yet undrained part of the town has been devised by Mr. Parkinson, and will shortly be carried out. When, in addition to this much needed improvement, the present large ugly and insanitary dust-bins have been abolished in favour of portable iron receptacles, all anxiety respecting the future of this popular little watering place will be at an end. As regards the Sherringham water supply, I have already stated in my previous annual reports that it is as excellent in quality as it is abundant in quantity.

The drainage of East Runton requires some rectification. Perhaps the time has not yet come for a new and comprehensive drainage scheme, but at all events excremental matters must be kept out of the existing drain, which was never constructed to receive such sewage products. One or two owners of property have very injudiciously connected their closet cesspools with the drain in question, and it is not surprising therefore that the ravine down which the contents of the drain run on their way to the sea-shore became a standing nuisance during the hot, dry summer months. These cesspool overflow pipes must be taken up again, and the contents of the cesspools disposed of in some other fashion.

During the past year I have spent a considerable portion of my time in the district, as is very well known to all those living in the vicinity of West Beckham. The year, however, has been a very trying one, from the very great number of infectious cases occurring in almost all parts of the district during the greater part of the year. I never remember having had such a stress of work as I had last year in this and another rural district with which I was until recently connected. However, I have done my best to visit each infectious case and prevent the spread of the disease. I have visited every parish in the district, some of them on several occasions, and made myself conversant with their general sanitary condition, recommending such improvements as seemed to me both necessary and practicable.

The various dairies and slaughter-houses in the district have all been duly inspected and found satisfactory in most instances.

Mr. A. G. Ling, the Sanitary Inspector, has rendered me very essential service in improving the sanitary condition of the district. Considering the large extent of the union and the number of new houses that are constantly springing up all along the coast, his office must certainly be anything but a sinecure. He informs me the following nuisances were dealt with during the past year :—

New closets	...	...	...	...	...	13
Closets repaired	...	...	...	...	...	6
Closets emptied	...	...	...	...	...	7
Water laid on to closets	...	...	...	...	...	1
New bins	...	...	...	...	...	6
Bins repaired	...	...	...	...	...	2
Bins emptied	...	...	...	...	...	15
Manure heaps removed	...	...	...	...	...	13
Nuisance from pigs	...	...	...	...	...	3
Drainage improvements	...	...	...	...	...	21
Overcrowding	...	...	...	...	...	5
New wells	...	...	...	...	...	2
Improved water supply	...	...	...	...	...	5
Cesspools emptied	...	...	...	...	...	1

Cottages repaired	...	...	...	...	5
Slaughter houses improved	...	...	...	...	2
Cowsheds inspected	...	...	...	...	4
Dust holes filled up	...	...	...	...	1
					<hr/>
					112
					<hr/>

Various new houses were also inspected, and 15 certificates granted for water supply.

SHEPHARD T. TAYLOR.

West Beckham,
March, 1894.

CAUSES OF DEATHS OF CHILDREN UNDER ONE YEAR OLD.

Asphyxia	...	...	1	Meningitis	...	...	1
Bronchitis	...	...	8	Peritonitis	...	...	1
Broncho-Pneumonia	...	...	3	Premature Birth	...	...	13
Convulsions	...	...	4	Tabes Mesenterica	...	...	2
Debility	...	...	3	Tubercular Peritonitis	...	...	1
Diarrhœa	...	...	3	Tuberculosis	...	...	2
Erysipelas	...	...	1	Whooping Cough	...	...	9
Jaundice	...	...	1				<hr/>
Lardaceous Disease	...	...	1				59
Marasmus	...	...	5				<hr/>

SUB-DISTRICTS.	Estimated Population 1893.	Birth-Rate	Death-Rate	Average Age.	Under 1 yr.	Zymotic Death-Rate	Phthisis.
Cromer 	6274	27	14	42	88*	1.9	1.6
Holt 	6410	25	18	32	161	2.8	1.2
Repps 	4058	32	18	38	116	1.9	1.9
Workhouse	65			61		NIL.	NIL.
Whole District ...	16807	28	17	38	129	2.2	1.5
INDIVIDUAL PARISHES.							
Holt 	1793		22	23		3.3	0.5
Sherringham ...	1556		16	41		0.6	2.5

*The Figures in this Column represent the Ratio of Infantile Deaths to 1000 Births.

No.	LOCALITY.	GRAINS PER GALLON.						DEGREES.		REMARKS.
		Free Ammonia.	*Albuminoid Ammonia.	Oxygen Consumed.	Chlorine.	Nitrogen as Nitrates and Nitrites.	Total Hardness.	Permanent Hardness.		
1	Holt Service Water ...	·0018	NIL.	·0067	2	NIL.	14	5	Very pure. Typhoid	
2	Aldborough School Pump ...	NIL.	·0014	·0476	3½	2·80	35	10	Very pure. Diphtheria	
3	Garwood's Pump, Baconsthorpe ...	NIL.	·0035	·0567	4½	2·10	25	8	Pure. Typhoid	
4	Frere Arms Pump, Edgefield ...	NIL.	·0056	·0151	13½	7·35	64	39	Pure. Typhoid here formerly	
5	Knight's Pump, Southrepps ...	NIL.	·0056	·0399	7	4·90	42	18	Pure. Typhoid	
6	The Brook, Little Thornage ...	·0014	·0056	·0462	2½	NIL.	23	8	Pure. Typhoid here formerly	
7	Spink's Well, Weybourne ...	·0070	·0056	·0651	8½	2·80	28	20	Pure. Typhoid	
8	Rectory Cottages Well, Overstrand	·0056	·0070	·0063	13	NIL.	32	16	Fair. Typhoid here formerly	
9	Fox's Pump, Roughton ...	·0014	·0077	·1337	5	4·90	40	12	Chemically impure. Typhoid	
10	Reynold's Well, Northrepps ...	NIL.	·0084	·0413	19½	8·40	18	18	Doubtful. Typhoid here in 1892	
11	Rogers' Pump, Thurgarton ...	NIL.	·0098	·0826	12	2·10	34	16	{ Chemically impure. Typhoid. 18 ft. from dry dust-bin	
12	Filby's Pump, Edgefield ...	·0140	·0140	·0602	17	8·40	50	23	Chemically impure. Typhoid	

* The Albuminoid Ammonia is taken as the Measure of Impurity.

